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THE MILLION DOLLAR LECTURE

THE MILLION DOLLAR LECTURE

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SENIOR CLASSES IN ENGINEERING ADMINISTRATION
AT THE MASSACHUSETTS INSTITUTE
OF TECHNOLOGY

BY
ERWIN H. SCHELL

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PREFACE

I have found it hard to write the Million Dollar Lecture. I have missed the stimulus which I always find in talking to a class. However, as I wrote it, I have imagined myself face to face with the Five Hundred and have talked rather than written my message. The content of the lecture has changed slightly with repeated presentations and in this printing I have added certain material which has formed a part of my letters to the Five Hundred.

It has been largely through the kindness of Mr. Henry P. Kendall of the Plimpton Press who generously extended his coöperation and that of the Press, that I have been encouraged to go forward with the idea of the private printing. I am very grateful to him indeed.

ERWIN H. SCHELL.

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THE MILLION DOLLAR LECTURE

The Million Dollar Lecture

I THINK that I should first explain to you why I have the temerity to expect any lecture which I might give in the space of fifty minutes to be worth a million dollars. I can best do this by telling you of the reasons for my return to Technology as an instructor.

Although I am an engineer rather than a pedagogue by preference and training, it seemed to me that there was an engineering opportunity here at Technology. I saw an opportunity to save the Tech man who is interested in the business side of industry at least two years of delay in accustoming himself effectively to his new surroundings, provided I could give him the true picture of industry and help him to avoid the mistakes and troubles which I experienced when I started to ring a factory time clock.

Assuming that I could give this viewpoint and information to, say, five hundred men, I would make a total saving of one thousand life years. That appeared to me to be a pretty good job for any engineer.

In this lecture I am going to lay down rules of conduct which I am confident will reward each of you with ten thousand dollars additional income during the next ten years if you will follow them faith-

fully. Therefore, to the one hundred and more students in this room, the lecture should have a potential value of a million dollars. This explains the title which I have given it.

Here at Technology, you have learned three things well. First, you have learned to think straight. Our technical problems in mathematics, physics, chemistry and applied sciences offer precise solutions. You can carry the answer to "seven decimal places." There is no room for undisciplined thinking.

Second, you have learned to work hard. There is no question of this, and it will be one of your greatest assets. I am told that it is an outstanding feature in Technology men and that they are known from one end of the country to the other for this characteristic.

Third, you have learned self-reliance in the scientific method. You have been steeped for four years in problems. At the moment you probably feel that you have seen enough of them. But I am confident that after you graduate, you will soon miss grappling with them and will promptly start looking for some big puzzle to solve. If you succeed in getting the answer, you won't have to look for many more, for people will bring you all that you can handle. We have altogether too many problems in business and altogether too few men who can tackle them and get the right answer.

Certainly these three assets will stand you in good stead. You will find that business men, in general,

will look for them as a part of your stock in trade, and will give you ample chance to capitalize them.

But I want you to know that they are not enough. There are other resources which you must concentrate upon and bring into balance if you are going to keep a clear record for the next forty years in business.

The first of these is a facility in the art of finding, making and keeping friends. The value of friends in business is tremendous. Friends will bring you your greatest opportunities for service. They will urge you towards the fields of service for which you are best fitted, for they often can sense your abilities and capacities far better than can you. They will prove a primary source of life happiness which will increase as the years pass. Now the point that I want to impress upon you is that friends are not a predestined part of your social or business environment. We are not born to friends; we must find them, make them and keep them.

How do we find them? I believe it is by schooling ourselves to look for the best in people. There is nearly always something in every personality which we may admire or enjoy. We should cultivate the habit of looking for such characteristics in every person we meet. To learn to like people is the first step toward finding friends.

And how do we make friends? Do we merely reveal to them the attractiveness of our personality and thereby expect them to become our ardent advocates? I believe a number of people assume this

to be the process. No, to make friends requires that we "show ourselves friendly" through the doing of friendly things. The Boy Scouts have a motto: "Do one friendly thing each day." It is a mighty good motto. I believe thoroughly in it. I think everyone should adopt it. We should cultivate in ourselves a heightened taste for the pleasure which results from kindness. Some one has said, "The more you put into life, the more you get out of it" and we may paraphrase this by saying, "The more you invest in kindness, the more you will gain in friends." When you start on your first job, I wish you would try an experiment. Select five of your new acquaintances and show yourself friendly to each by some little act of courtesy or thoughtfulness which is over and above the normal demands of your acquaintanceship. Then just watch these five cases and see if you do not get a friendly reaction in return.

Last, how do we keep friends? It is not a passive process. As one man said to me, "We must keep our friends in repair." For one thing, we must not forget them. I always look forward to the coming of Christmas for it has given me an opportunity for a number of years to send little home-made Christmas cards to many of my friends, and each year as I look over my list and recall the instances which have brought my friends to me, I renew in my heart, at least, the warmth of our past acquaintance, and I find that this yearly opportunity to recall myself to them is becoming a very cherished one.

Again, we must help our friends when they need help. We have all heard the adage, " A friend in need is a friend indeed " but we only realize its significance when we are the party of the first part. If there is any one thing which warms the cockles of the human heart, it is the knowledge that your friends are not " fair-weather friends," that they are true, and will be at your side in adversity as well as prosperity. A man with such friends may not be a rich man but he is assuredly a " man rich." If we are to be friendly in turn, let us be steadfast friends.

We must bring our friends the truth always. To follow this precept may require tact, and even courage. We hesitate to disagree with our friends, we shrink from the saying of that which may bring disappointment or sorrow, yet if we are sensible of our responsibilities we will lay the facts before them that they may " grow in the ways of Truth." And when you view the situation roundabout, it is easy to see the value of a friend upon whom you can always rely to give you facts even at the risk of displeasure.

To keep friends demands something more. It demands character. No one likes a person because of his failings. We look to our friends to help us not only by their acts but by their example. Conversely, we must stand for something worthwhile in their eyes if we are to maintain their regard.

Now, I say to you that I will measure the rate of achievement of your future success largely in terms

of your ability to find, make and keep friends. I say this because I know that you will be able to do the work which will be assigned to you from the standpoint of both quantity and quality. I am confident that you will fit on the job. But your greater opportunities will come only after you have proved your ability to fit in the organization, and to fit in an organization is to find your place among friends.

One last word on this subject. I have been emphasizing the importance of friends as an element of success. I ought also to tell you that this is a very minor point compared with the importance of friends as an element of happiness. I once asked Professor Armstrong "What are the constituents of happiness," and he answered, "I believe we find our greatest happiness in three things: In our family, in our friends and in our opportunity to express ourselves most effectively in our life activities." I have never been able to better his definition and you can see that friends play a great part in it. Learn to show yourself friendly,—it will be worth the effort, I assure you.

The next resource that I want to see upon the asset side of your personal balance sheet is ability in the art of coöperation. This is a characteristic in which the technically trained man is often found to be lamentably weak, but I think that the weakness may be readily explained. The scientific method in which we are all trained is a method of analysis. Analysis is essentially critical and our viewpoint tends

to be likewise. The error which we frequently make is in assuming that the critical attitude demands individuality of action as well as thought, and we then adopt a non-coöperative attitude. We view industry through the eyes of a reformer, as something to be revolutionized, rather than evolutionized.

Business needs independent thinkers and it needs idealists. The last thing we demand of our executives is "mass thinking." There is no man more dangerous to industrial progress than the "yes-man." But business will also demand of you a practical vision of present conditions and a willingness to enter the firing line and work with the others in an attempt to better a given situation. We must have coördinated and coöperative action if our organization is going to reach its objective. It has been said that the progress of civilization is based upon our progress in the art of coöperation. Coöperation, in turn, is based upon confidence in one's leaders and associates and the presence of a common group purpose.

Now service to industrial progress is a purpose which is common to many men. It has become almost their religion. They have not hesitated to sacrifice personal gain or ambition to this greater aim. I believe that sooner or later you will accept industrial progress as your fundamental interest and prove it by your willingness to step into line and shoulder your share of the job. When you do this, your associates will feel assured that you have found your work. You will find that your viewpoint will

not be "What will I get?" but rather, "What can I give?" You will be constantly trying to improve the ratio of your effective production to the time spent in accomplishment. You will be alert to better the coördination of your work with that of others, you will become adept in accomplishing results without causing friction or ill-feeling. In short, you will learn to coöperate.

One more point, — be sincere in your coöperation. Get into a business that you personally want to see succeed. Then work for the business. Put its welfare before any consideration of yourself. Apply yourself continually to the problem of its advancement, not your own personal interests. Business men are keen to sense this element of sincerity in service. It is a virtue much sought after by employers.

The next thing that I want to talk to you about deals with the development of your future habits. We have learned of the great increases in production which have been brought about by automatic machinery in industry. We probably have not realized that we have in our own possession remarkable facilities for making volitionally automatic many of our own activities, as the result of the careful formation of habits. Unfortunately we rarely conceive of habits as being anything but bad. This is certainly an error on our part, for there is no better way for us to capitalize our experience and make ourselves increasingly productive than through the development of effective habits.

I am sure that none of you expect that an increase in age necessarily brings increased earning power. Earning power increases as productiveness increases. If we must increase our output in relation to time, it must be done by improving the ratio of our output to our effort. The formation of the proper habits allows us to reduce the amount of effort necessary to perform given tasks. It is the development of habit that lies at the bottom of the successful principle of the division of labor.

Now there are several different habits which I want to talk about. First let us consider habits of work. I am sure you will agree with me that hard work is becoming a habit with you. Technology, as I have said before, aims to train you to work hard. You have a good start in this direction. Now you must not lose your momentum. I can think of no reward that I would rather see you win than the reputation of a hard worker.

I do not mean that you must work unthinkingly and without results. There are some people who seem to believe that if they cultivate an atmosphere of action, the work will take care of itself. They are apt to fall into the error of one very energetic student who came out for the relay team in my Freshman year. The coach remarked that he ran "like a sewing machine,"—a great deal of action but little progress. I recommend that all of you who worship the doctrine of "pep" should spend a few moments reading William James' essay on "Vital

Reserves,"[1] for it will teach you the greater value of calmness and serenity in gaining high productive efficiencies.

Remember this: Never allow high wages or pleasant working environment to tempt you into a position where you cannot safeguard and continue to develop your habits of industry. There is nothing that will be more destructive to your own worth and value than the formation of the habit of loafing on the job. You may find that there are times when you will have to use every bit of your imagination to keep yourself consistently busy but you owe it to yourself to be active in any position which you may be filling. I can recall two cases in which men were given high-sounding titles and considerable salaries with nothing to do, with the clear intent of ultimately rendering them worthless (and harmless) through the destruction of their habit of work. In both cases, the proposed victims had too much intelligence to be led into such traps and, through their energy and imagination, they built their jobs into such value that promotion rather than dismissal was the result. Never lose your grip on work: It is the handle of success.

If you want to read a little book that reflects my feeling in this matter, I would suggest Arnold Bennett's "How To Live On Twenty Four Hours a Day."[2] It will help you to keep on your toes and not waste your opportunities.

[1] Henry Holt & Co., 19 W. 44th St., N. Y. C.
[2] Geo. H. Doran Co., 244 Madison Ave., N. Y. C.

Next, there are habits of thought to be formed and safeguarded. I hope that you may never forget the need of humility before truth. Face the facts as you find them, not as you wish them. Think fearlessly. The business of today lies in the grasp of great economic forces which are still too unorganized to control. We must understand the trend of these forces and, until we are able to guide them, we must trim our sails to make use of them rather than oppose them. Business men have been accused of being "cold-blooded." In reality, they are normally men of strong emotions, — controlled and guided by the intellect. Judgment is an affair of the intellect, not of the emotions. Facts must be distinguished from opinions, that which *is* must be considered rather than that hoped for. Business needs men who are intellectually courageous, who are not afraid to ask "why" and whose minds are freed from the pressure of emotions.

I want you to retain your habits of mental concentration and penetration. I have found a great need in business for men who can concentrate on a given problem and stay with it until they come to an answer. It is surprising how many people allow their minds to jump from one subject to another without effectively dealing with any. Learn to think deeper into a subject than the average person. Often it is this last increment of penetration into a business matter which unearths the weak point or shows the true solution. In these days of narrowing profits,

we must be right a much larger percentage of the time than we have been in the past.

I wish there were some way in which I could really impress you with the importance of forming habits of health. There is so much talk about health, and youth usually has such a surplus that I know you will not give these habits due weight. When my mother told me, "Your health should be your first consideration," I dismissed the advice lightly. Two years later when I spent three weeks on a cot as the result of irregular hours and irregular meals with the feeling that all of my work of past months might be wasted as the result of my absence from the job, I recalled my mother's instruction rather vividly. I listened to one of Technology's most prominent graduates address a small group of students at a private meeting a short while ago. He talked solely of the necessity of safeguarding health. He mentioned instance after instance of men whose success was snatched away just when they were about to reap the rewards of a long struggle, because of physical failure.

I am not going through the usual rote of the hygiene of food, shelter and clothing, but I would like to give you the benefit of some of my own experiences. Don't try to economize on your food. Get home cooking if you can. There's not the variety at Mrs. Simpson's boarding house that you find at the Star Lunch Counter, but boarding houses are apt

to have a clientele more given to complaint and, as a result, there is a greater pressure for quality.

Take exercise systematically. I have run the gamut of experiments in exercise, including long walks, Y. M. C. A. memberships, The Daily Dozen and golf. The two things which endanger the continuance of any plan are the amount of preparation necessary and the amount of time required. It takes initiative to make preparations and this form of initiative is not common to most of us. We are prone to plan to do more in a day than is possible, and when the program is shortened, exercise usually suffers. Personally, I have gained more benefit over a period of several years from Alois Swoboda's course of exercises (termed Conscious Evolution) than any of the rest. His method is designed to keep the muscular organization in tune and I find that it produces a type of physical vigor without the possible dangers of over-exertion which some of the other schemes reflected.

And then there are habits of thrift. An old friend of mine who was a man of much wisdom told me that it was his opinion that the average person did not grow up until he was at least thirty years old. I think there is a great deal of truth in this. I want to couple this thought with a statement of Theodore Roosevelt's to the effect that to be thrifty is to spend wisely. Now I believe that if you are to be truly thrifty between your present age and the time when you are thirty, you will spend your income wisely

if you spend it on yourself. By this I mean that the greatest investment you can make between now and the time when you are thirty is an investment in yourself.

There are many ways to do this. The building of a well-read library is a fine investment. I know a very successful administrator who will not consider hiring an executive for a high position until he has seen the man's library and met his wife. Travel, if viewed as an opportunity for knowledge and not merely as a recreation is another excellent investment. Membership and active participation in professional or other societies whose purposes are parallel to your own will take your time and to a limited extent your money. In return you will find opportunity to widen your circle of acquaintances and friends and you will learn the value of these organizations in point of service. The investment in a home and family will be the one which will consume the most of your surplus, but it will probably yield the richest returns both in happiness and in financial remuneration of any venture which you undertake. I know you are eager to hear how a home may prove financially profitable but I shall reserve my explanation until a little later.

A word about saving money. You are wondering how I can have the courage to recommend to you the saving of any money prior to your reaching the age of thirty, in the face of all of these other investments of surplus. Now my only recommendation is this:

I want you to form the habit of saving money. Even if you lay aside only a dollar a week, get in the habit of doing it. It is the doing, not the amount that counts. Later, when your income increases, the amount can be arbitrarily enlarged at the time of the advance, and you will not feel the pain. For your own peace of mind, it is mighty helpful to have the equivalent of three months' salary in cash at all times in the bank (six months' is better).

Don't overlook the habit of success. There is such a thing. Make it a customary thing to surmount difficulties, even in little things. Perhaps the winning, in itself, will not be worth the effort, but in the strengthening of the habit, its value is immeasurable. The world has a place for men who will finish that which they undertake. I wish that I might be able to burn this point into your minds so that it would always be before you.

Of course, I have not exhausted the list of desirable habits which may become of increasing worth to you as you grow older, but I hope that I have driven home to you the importance of their cultivation. We cannot stand still in life. We must either go forward or backward. I believe that one of the greatest elements in consistent progress lies in the increasing development and use of good habits.

I ask you further to give serious attention to the fostering of broad interests. Dr. Richard T. Ely, in his " Outlines of Economics " says that there are two forms of poverty, — the lack of goods for the higher

wants and the *lack of wants for the higher goods.* I am sure that it would be a great misfortune if you should go through life so absorbed in the problems of your business that you failed to give something of yourself to other activities of humanity. I appreciate that the proportion of time which you will give to different interests will rightfully vary, depending upon your age, but at no time do I believe that these interests should be entirely absented from your thought and action in favor of additional emphasis upon the matters of a livelihood. I think I can prove to you that these other interests will strengthen rather than weaken your productive capacity.

For example, I want you to make friends, — friends outside of your business life. You will need such people to divert you from constant attention to your every-day work. They will help you to gain perspective in your outlook on life, and in times of business stress you can turn to their company for needed relaxation.

Again, I hope that you will keep awake your interest in beauty as it is found in nature, in paintings, in music and in drama. Cultivate an appreciation of it. Learn to care for fine things. You will find these cultural developments will reflect themselves in higher standards of quality in your work. Employers will realize this. I remember hearing of a man who applied for a position under a very able executive. One of the questions which the employer asked him was, "What school of painting do you prefer?"

although he knew the man to be a technical graduate. The business world needs people of broad appreciations and in order to do your best work, even though it be in a highly specialized field, you must take care that your other capacities for interest and appreciation are not stifled.

I have urged upon you the importance of good habits of reading from the standpoint of the job, and I now urge it upon you for its broadening influence. When we stop to consider the tremendous part which literature has played in transporting civilization onward through the centuries, its value to each of us goes without saying. I surely hope that you will learn to find great comfort in good literature. If you don't know how to start on this task, I would suggest that you read Arnold Bennett's "Literary Taste and How to Form It."[1]

There is another thing that the technically trained man often dislikes interesting himself in and that is the matter of politics. I think this feeling may be explained by the natural dislike of the scientist to deal with an opinion. Unfortunately, human nature is so baffling and events are so complex, that all we can call the result of our thinking in politics is an opinion. Nevertheless, I am convinced that it is our duty to formulate these. And I hope that they will be your own opinions and not the parrot-like expression of somebody else. It is said that public opinion is made up of that which the majority of

[1] Geo. H. Doran Co., 244 Madison Ave., N. Y. C.

people believe the other person thinks. Don't be in this class.

In this field of interest there comes also the matter of our civic activities. While it is true that these usually have their most fitting emphasis in later life, yet I do believe that you should take some active steps to be of service to your community. If you cannot do this, at least acquaint yourself with those who are fostering constructive ideals.

These interests appear far away from the purpose of this lecture. Let me cite two instances that may make them seem somewhat closer. One of the most meteoric successes among the younger Technology men gave a talk to a group of students in our course. He said that a great part of the knowledge of human nature which he had found invaluable to him in his work, he had gained from his contacts with men in political life, a field in which he had spent a great deal of his outside time. One of the graduates of our own course who I believe is the highest paid executive on our list, writes me that he has been elected President of the Chamber of Commerce of the town in which he is employed.

I am sure that you will not overlook the interest which everyone should have in religion of one form or another. All about us, we are hearing the greatest minds of the present time telling us that we must introduce more of the spiritual into our increasingly materialistic environment if we are to get the greatest

happiness from life. If you have not found the opportunity to give this matter much thought I should like to recommend two books for your consideration. One is Ralph Waldo Trine's "In Tune with the Infinite"[1] and the second, Harry Emerson Fosdick's "The Meaning of Prayer."[2] I don't want you to attempt to read either of these books unless you plan to read them well. If you question the pertinence of religion to business success, I would also suggest that you read Arthur Nash's "The Golden Rule in Business."[3]

A last word about these broader life interests. I want you all to be economically productive. I want you all to be economically successful in your professional or business life, but more than this, I want you to be *men*. I want you to live a balanced existence year by year. I want you constantly intimate with the round of life. I think I have convinced you that rewards will follow.

Next, I want to talk to you about incentives, the forces that urge us on to accomplishment. There must be incentive of some sort behind every voluntary human action. Therefore, if we are constantly to improve the effectiveness of our action, we must likewise improve the nature of our incentive. I charge you to surround yourselves with all possible incentives, for from them you will gain the impetus

[1] Dodge Publishing Co., 55 Fifth Ave., N. Y. C.
[2] Association Press, Y. W. C. A.
[3] F. H. Revell & Co., 158 Fifth Ave., N. Y. C.

which will drive you through difficulties and obstacles to success.

What are some of the normal incentives that we should cultivate? One of them is the desire to possess. Particularly do we want to possess those things which will allow us to do our work more effectively and free our minds from the worries and cares which may ultimately injure and destroy our economic usefulness. This is as it ought to be. Don't ever feel that it is unworthy to possess wealth. Wealth is a responsibility, not a privilege. It flows readily into the keeping of those who can cause it to flourish. Get all that you can of it rightfully, and then take care of it and see that it is put to useful purposes. You can do no greater service to civilization.

Another incentive which you should capitalize is the desire to do a thing well. We all find satisfaction in this, provided we are doing that for which we are best fitted by natural talent and training. In order to make use of this incentive then, you will have to find the one best job for you. Once found, you will not be able to free yourself from the constant urge to improve the quality of your output.

I hope that you will all make use of the incentive which comes with competition. The opportunity to pit one's capacities and abilities against those of another in fair play is often the factor which gives the greatest zest to business for many men and which holds them to further accomplishments and service

long after their other wants have been satisfied. Competition urges us on to our best efforts. Enter the game, play fair and as Roosevelt said, "Hit the line hard."

Don't be afraid to "hitch your wagon to a star." Find an incentive in your ambition. As I have said in one of my past lectures, "the world steps aside for the man who knows where he is going." When I graduated from Technology, I looked at life somewhat as one looks out through a funnel: everywhere before me was an ever-widening vista of future possibilities. I want you to have a better outlook. I want you to see life as a cycle. I want you to realize that you are now somewhere upon the upward curve of economic value; that a point of maximum value will probably be reached between the ages of forty and sixty, and after that a waning. When you accept this picture and formulate an ambition which is in accordance with it, you will find that you have provided yourselves with a strong incentive not for hasty, ill-planned progress but for a slow, sound, sure advance which will undoubtedly yield you a maximum of opportunity at the age when you are best fitted in judgment and experience to cope with it.

I think that the greatest incentive that will come to you will be a home and a helpmate. I would not urge you to think overly of these things, for the building of a home begins with an affair of the heart rather than of the mind and when you are ready to start it will not be as the result of a process

of thinking. You will know that you are ready without the need of thinking.

After your home is established, you will find that there will be no incentive in life which will urge you forward with greater insistence. The desire to uphold and further the welfare of those who are nearest and dearest to us is one of the strongest and most elemental forces in human nature, and I can think of many men who I believe have been raised to great achievements as the result of this form of incentive. This is the thought which I had in mind when I stated that an investment in a home would prove itself financially remunerative. I am here to testify that when you have a family to support, you will get out and dig in a way that is vastly more remunerative than would be the case if you had not undertaken such responsibilities. There is a saying, "If you want to save money, get yourself in debt." That is to say, buy something of permanent or increasing value which you cannot entirely pay for and then save to pay. I think I can truly paraphrase this by saying, "If you want to earn money, get married."

While, as I have said, I do not urge you to give undue thought to this matter, yet I think you would be equally unwise to close your mind to such a possibility. The thing to do is to get yourself, through your own efforts, into a financial position so that marriage may be economically possible. I have been impressed by a statement made by Dr. Eliot to the

freshmen of Harvard College. He urged them all to marry as soon as possible after graduation for, as he pointed out, it would then be possible for a man to be in the prime of life when his children had passed the period of constant parental care, and he and his wife might then find it possible to travel and enjoy similar recreations. With later years would also come the enjoyments of the grandchildren, — one of the greatest blessings of Autumn days. If you would care to read a lovely essay which typifies the happiness which the home may bring, I would suggest Elbert Hubbard's "White Hyacinths."[1] I think you will find it well worth while.

There are several hazards that face you and I want to warn you of them. One is your natural tendency to under-emphasize the value of experience. After you have spent perhaps fifteen years undergoing a process of becoming educated, it is natural that you should assume that your fund of knowledge plus your training in the scientific method plus your ability to study through reading would enable you to approach successfully the majority of business difficulties.

It is true that knowledge is objectified human experience. The trouble is that we haven't objectified enough of it. There are many, many phases of business which have not been formulated into principles or laws. Science is only beginning to push its way into this field. Therefore, you will have to learn

[1] The Roycrofters, East Aurora, N. Y.

much from the doing. You will have to make mistakes, face them fairly, trace your error and try again. Particularly is this course true in your dealing with human nature. It has been said that man has made great progress in his dealings with things, but comparatively little in his dealings with his fellows. You will have to grope your way to a successful technique as thousands of young men have done before you, and it will take time. Skill in the ability to sense the point of maximum return between value and cost in all of the activities of business cannot be gained in a day. To learn to solve problems composed of rapidly shifting data will be a new experience for you and much practise will be necessary before you become proficient. The mastery of the time element in business is an extremely difficult accomplishment. To determine the proper rate of business expansion, the rate of assimilation of new ideas by a given organization, or the rate of public acceptance of a new product through advertising, — there are many such items which you must approach carefully and slowly if you are to learn the answer.

I know that once you have appreciated the importance and value of experience, you will lay out for yourself effective plans for gaining it as rapidly as possible. Remember that there are some forms of experience that you can buy more cheaply during the next few years than is possible at any other time in life. For example, the performing of the routine operations in a factory, a retail establishment or a

bank will teach you things which you won't find in books. You will sense the real atmosphere of the workplace, you will learn how employees think and feel and behave, and you will gain a certain self-confidence and facility in the processes, all of which will prove of the greatest value to you in later life when the quality of your business judgment will be largely influenced by this background. During the first few years after graduation, this experience will cost you little more than your time. Once you have gained it, you are armed with a resource that no one can take from you. Later in life when you have shouldered the responsibilities of a home and family, you will probably find the cost of such experience prohibitive. Therefore, get it while you can.

Another tendency which you will have to control is a certain restiveness which you are almost sure to feel after you have been on your first job for a period of a few months. The reasons seem clear to me, now that I can look back and see my own experience with some perspective. There are a number of things which tend to make us restive. They are particularly dangerous because they work subconsciously so that we don't appreciate the cause, we only feel the effect.

One of these factors is the wanderlust of youth,—the instinct that probably spread people over the face of the earth. An employment manager once tabulated all of the terminations from the working force in terms of the reasons given for leaving. He obtained

the usual reasons, with "low pay" or "too long hours" predominating. So he reclassified his data by age, sex, nationality and similar divisions. He found that 65% of his terminations were American boys between the ages of twenty and thirty who were unmarried, who were not residents of the town, and who lived in boarding houses. Statistics pointed to the true reason, — the subconscious pull of the wanderlust.

The other factors can all be grouped under the heading of the pressure of habits which result from our educational training. When we spend fifteen years going to school, we form a number of necessary habits. When we are not given opportunity to exercise them in industry, it makes us feel uneasy.

One of these habits is that of expecting a constant variety in your work. All through school you are doing something different each day. There is constant change. You become accustomed to it; learn to expect it. When you take the new job, you find this variety in satisfying amounts at first. After you learn the job, however, repetition is called for and you feel (not think) that you are not accomplishing anything if you have to do the same thing more than twice, for in school the need of repetition was the mark of a dull student.

Again, in school, the teachers always had their eyes on you. You formed the habit of expecting constant attention. On the job, you will find much less of it. I can remember how dejected I used to feel

on my first job, when the President of the plant (who hired me) didn't speak to me when he went by my lathe. Common sense and a knowledge of organization principles tells me now that he couldn't shower me with greetings any more than any other of the two hundred men in the room, but I had been in the *habit* of being under attention and the habit wasn't having opportunity to function. I felt (not thought) that I was in wrong, somehow.

Then there is the habit of environment. Often we don't find the beauty and the culture surrounding the job as it surrounded us previously. After a time the lack of these satisfactions seems unbearable. I remember how I discovered a room in the gaunt, bare, sanitary Y. M. C. A. which had been assigned to the ladies of the town for teas, and was decorated in exquisite taste, and how I would sneak down there in the evenings and read Marcus Aurelius in an effort to get away from the stark ugliness of my surroundings.

Why do I take the time to tell you these things? Because I want you to learn to dig out the true reasons which cause feelings of restiveness. Don't fool yourself into accepting the excuse of "too low wage" or "too long hours," or something of the sort, if your feelings are really the result of some old habits that are crying out for exercise. Face the real facts and I will trust you to arrive at a common-sense conclusion.

Another rock which I want to chart for you is

what the business man calls "over-ambition." I think the expression is a misnomer, for no one can be too ambitious, providing his aims and ideals are right. They really mean a certain impatience of progress which is a rather common quality among college graduates. I think this impatience has a very logical foundation, which we can trace back to the habits of achievement which you have formed. Did you ever stop to think that almost everything you ever set out to do required four years or less for accomplishment? When you entered high school, you saw commencement four years ahead. When you entered Technology, you saw the diploma four years ahead. When you find the Girl, you will think of graduating from a mere existence in less time than four years.

When you begin work and you see the administrators on the jobs which they hold as the result of ten or twenty years of experience, you look up at them in just the same way that you looked up at the Seniors when you entered college. Your habit of achievement subconsciously sets a time of four years or less to reach a similar position. So after you have worked hard for a period and the boss is just about to "have a little talk about the future" with you, — perhaps arrange for you to get an interest in the business and grow along with it, — you feel (not think) that you should have advanced faster because you have been in the habit of reaching your goal more rapidly in the past. So you throw up your job and the boss throws up his hands.

Now, you must constantly correct your viewpoint for the distortions that these old habits will cause. If you will only make these corrections, I shall not worry a whit about your ability to form right decisions, but I do want you to consider these influences squarely and fairly and allow for them. When you enter business, you enter a new land. You will have to change your money into the coin of the realm and lay aside your old methods of making change. It will be awkward at first, but that won't be the fault of the new system, but rather the backkick of the old way of doing. Don't make the mistake of blaming the new coinage, — just try all the harder to become accustomed to it.

And last, I want to talk to you about the coming job. I am not thinking just of the first job, — rather of your work for the next forty or fifty years. As I see it, you face three hazards.

The first and greatest is that you may fail to select for your life-work, that which you can best do. Every person has in his personality every ability and capacity in some degree. But the proportion varies with everyone. His talents may be rather evenly distributed, or they may be concentrated in certain limited fields. Their aggregate may be great, in which case we call him a "gifted man," or they may be limited and he will rightfully find his place among the lesser walks of life.

Many of us make the great error of refusing to recognize the inevitable restrictions which our herit-

age of capacities and abilities throws about us. We try to do things which we are not naturally fitted to do, and we leave undone the things in which we could excel. Sometimes we even rebel at the thought of entering a vocation in which we would be naturally effective. Take my own case, for example. I remember a week before I graduated, I spoke to the class after a lecture for a moment or so, and when I finished, one of my classmates muttered, " I believe Schell is going to be a professor." That certainly made me mad. In fact, I think I still hold a little grudge against him for the remark.

Supposing, however, that you are willing to look the facts in the face. Wherever your talents fit you, there you want to go. How can you find the place? I believe that at the outset, your friends, particularly those who are older and more experienced than yourself, will help you most. They can easily compare your personality and capabilities with those of others, and they, better than you, will know of the vocations where your qualifications will prove effective. The questionnaire[1] which I made possible for you to send your friends was aimed to help you along these lines.

[1] The questionnaire referred to was a form in which the following characteristics were listed with an accompanying column for indicating numerically the degree of strength of the characteristics:

CHARACTER:
Integrity: Moral soundness, honesty

Morality: Clean personal behavior
Unselfishness:
Loyalty: Faithfulness in relationships
Courtesy: Manners which reflect consideration for others

PERSONALITY:
Earnestness: Intentness and seriousness of purpose
Perseverance:
Initiative: Habit of undertaking things without outside stimulus
Courage:
Leadership:
Cheerfulness:
Sociability:
Sensibility: Quickness and keenness of refined feeling and sympathy
Modesty: Aversion to being unnecessarily conspicuous
Adaptability: Ability to adjust one's self to conditions

INTELLIGENCE:
Reason: The faculty of thinking accurately from premise to conclusion
Judgment: The faculty of basing conclusions on accurate weighing or comparison of values
Understanding: Realizing the significance of experience
Originality: Thinking or acting independently of precedent
Imagination: The characteristic of having constructive, original ideas
Foresight: The quality of accurate forecasting future results
Versatility: Facility in pursuing widely varied lines of thought or action
Memory:

BIOLOGICAL CONDITION:
Health: Bodily soundness
Sanity: Mental soundness
Physique: Bodily structure as powerful or frail, whole, or with definite imperfections
Hardihood: Physical endurance
Physical vigor: Abundance of physical energy
Mental vigor: Abundance of mental vigor

DEVELOPMENT:
Maturity: Completeness of development

During the next few years, however, I counsel you to give this subject the most careful study. I urge you to approach it unemotionally. Remember it is not what you would like to be (we all would like to be presidents of great corporations), but what you are naturally fitted to be that is the problem. Study yourself in comparison with others, find the activities in which you appear to have unusual natural fitness, and then hunt for a vocation where these qualifications have a maximum value. Remember this: the best job for you is the one in which you can use *all* of your talents to the greatest advantage and which does not demand characteristics in which you are weak. For example; if you have technical ability and humanic ability also, don't be content with a job where you can only sell the one, but work for a chance to sell them both. Endeavor to capitalize all parts of your personality. Let there be no waste.

Now don't be impatient about this. If you have solved this problem by the time you are thirty, you

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General knowledge and information
Experience: Opportunity for practical wisdom through events and observations
Self-reliance:
Skill: practical knowledge and ability

The students were given opportunity to send these questionnaires to nine of their intimate friends who were asked to return them, filled in but unsigned, to my secretary, who summarized the results upon a summary sheet. The student then added his own evaluation and thus an indication of his inherent tendencies and qualifications was obtained.

will probably have thirty-five good working years ahead of you in which you can give full service. The reason that I want you to take plenty of time is because I realize so keenly the importance of getting the right answer. The man in middle life with the usual heavy responsibilities, who finds himself doing work for which he is not naturally fitted, and in which he is therefore unhappy, and who finds it too late to change, is certainly a tragic spectacle, and the world is full of them.

The second danger that you face is that of affiliating yourself with men who do not have your best interests at heart. If you are to be successful in business over a period of years, I believe that you must have men about you, both above and below you in rank, whom you admire and who are worthy of your trust. You cannot be loyal to any other type, and loyalty is a corner-stone in business. I know a man who, many years ago, gave up an $1,800 job and took another at $700, because he had confidence in the management of the new affiliation. After he had proved his fitness in the organization, he was paid a small annual bonus which was later magnified by being converted into stock at par. Today, his dividends considerably exceed his salary. At approximately the same time, another man of about equal ability entered the employ of another concern. The management was poor. The stock was not allowed out of the family. A year ago, this man was still with the concern. His salary was only $4,000 and

his interest in the business was only that of "hired help." He had been robbed of his just rewards and, in my estimation, had wasted his life.

Find a job where you can make real and enduring friends of your business associates, and be sure that the concern that you start with has a man at the top for whose business ability you have the greatest respect, and whose character you admire and upon which you can rely.

The last danger lies in selecting a decadent industry. Pick an industry that is growing. Try and get in at the beginning of things. Do your share of pioneering and reap the greater rewards which it brings. Perhaps the pioneering will be in the form of new methods to adjust an old business to new conditions, but be sure in any case that there is a fundamental opportunity for future growth and stability ahead. Don't make the mistake, however, of entering a business where all of the major pioneering work has been done and where the future is largely a matter of continuation, however prosperous it may be, for you will not be *needed* here as much as you will be in some business which has many of its big problems still to be solved.

After you have found your field of work, try to discover a group of capable and reliable men who are tackling a real man-size business problem. Make sure that the economics of the opportunity are right so that success depends solely upon management. Then ally yourself with them and do your share to

help in the winning, and you will get your share of the rewards.

There is the Million Dollar Lecture. What have I asked you? I have asked that you

Learn the art of finding, making and keeping friends,
Learn how to coöperate intelligently and efficiently,
Enlarge your stock of useful habits,
Develop broad interests,
Appreciate the value of experience,
Guard against natural restiveness,
Guard against impatience with your progress,
Find the work that you are naturally fitted to do, and a market which values it the most.
Work with men whom you can admire and who are worthy of your trust,
Select an industry or a profession with a future before it.

I stand behind these precepts and I believe that the value I have placed upon them is very conservative.

As a last word, I want to impress upon you the great responsibility which you owe yourselves. You are soon to graduate from a school which many people believe to be the best technical school in the world. Only a very small percentage of the young men of this country have the opportunity which has come to you. Now I want you to sense your responsibility, and to make use of this opportunity.

I am ready to do everything I can for you in-

dividually and, I hope, collectively, to guide you and give you opportunities to make the successes in life which you owe to the world, and I believe that if you will co-operate with me and with each other so that we may work as a unit in fostering progress, nothing can stop us.

APPENDIX "A"

I cannot let this little book go to press without including one of the Five Hundred letters which is the product of a remarkable man who, at my request, wrote an answer which I put to him. Here is the letter:

"To the Five Hundred:

"I am going to send you a little different letter this time. I have had an experience which may interest you, and as you are all doubtless looking ahead, planning new ways of progress for 1923 it may also help you.

"Did you ever wonder how many people are going to attend your funeral? I found myself considering this question some time ago and was about to dismiss it as unimportant when I was roused by the further question: 'What are the characteristics of a man whose going leaves a real sense of loss' and I realized that I was very anxious that every Five Hundred man whether he be rich or poor, should make himself wanted, — badly wanted on earth.

"What makes such a man? I went to an acquaintance of mine who I knew had given such things much more thought than had I. I told him about the Five Hundred and I put my question to him. Here is his answer:

"We are attempting to describe the sort of a man who will make an impression. It is not a question of making a reputation, of making a name, or of making a fortune. But it is a question of making an impression upon other people: of having in one the qualities that count; of being in a real sense a person of influence; of having the virtue of saltiness; of being a bit of live leaven in the lump.

This kind of a man attracts attention in the deepest sense of that word. Unconsciously he wins the confidence, the affection, and the loyalty of other men. He is respected and honored by those who know him and come in contact with him. He succeeds before he dies in pushing things in the right direction. He has done real and abiding work. His labor is of the kind that lasts. It is a fundamental and permanent contribution to the total life. What are the qualities which make up this kind of a man?

"(1) In the first place, he will be a person of generous and unselfishness impulses. He will take a chivalrous outlook on life. He is the opposite of a self-regarding soul that thinks of nothing except personal gain and profit, pleasure and comfort, ambition and reputation. There is a striking verse in the prophet Ezekiel 22:30, 'And I sought for a man who should stand in the gap, and I found none.' The first qualification of the kind of a man that I am trying to describe is a willingness to stand in the gap. Man is called an animal that stands upright, but you see everywhere, upon the street, and in the home, men who seem to live on all fours. They never get out of their little groove of life and look for other things. Sometimes this selfishness is active, virulent, and poisonous. Often it is indolent and lazy. But such a man never accomplishes anything and never stands for anything. Good causes are never destroyed by being blown up, but by being sat upon. What we have to fear most in the war for social progress is not the violent and the anarchical, but the slow, the staid, and the selfish respectable. Quite the opposite from this is the kind of men who say, not 'Someone ought to do it, but why should I?' but rather 'Someone ought to do it, why should not I?'; men of purple blood, or, to use that other phrase, men of the 'Nelson touch,' who come to true greatness be-

cause they feel in some degree that their lives belong to their race.

"(2) The next virtue inherent in the kind of person that I am trying to describe is the old homely virtue of faithfulness, of dogged determination, of undiscourageable persistency. There are plenty of people who start, but there are few who are in at the finish. 'Many rise up with wings like eagles', but only the select band continues to walk without fainting. Mary Johnston has written: 'It is dogged does it: dogged finds the direction; dogged pursues it; dogged is your true knight errant.' As Dr. Parkhurst once put it, 'The reason that this world does not get better any faster is that good people get tired of being good before bad people get tired of being bad.' The indispensable person today is the person upon whose staying power you can surely trust; the one who can be relied on every hour of the day, who can be depended on seven days in the week, who can be counted on twelve months in the year; the one who makes an appointment and keeps it, who makes a promise and remembers it, who starts to do a work and does it, says a thing and means it, declares his allegiance and never wavers, shoulders a burden and carries it through sun and thunder, — he is the man whom his fellows crown and whom all generations rise up and call blessed.

"(3) The third quality is the love of adventure. We need men who enjoy all kinds of roughing it, who look upon all roughness of life as only so much pepper and salt, giving zest to work and creating appetite for more. The man I am trying to describe likes to live dangerously, to try something that never has been tried, to walk without leading-strings and guidance, willing to make great moral adventures. He does not care for the phrase 'Safety First' in his moral program. He follows the gleam in the spirit

of true explorers on uncharted seas and lands. Everywhere men divide themselves into two camps: those who are determined to play safe, who will do nothing except upon what they call 'dead certainties,' and those who are willing to take great moral risks, who are striving and daring. Always in our human nature there are these two contending impulses, and under which banner we range ourselves — whether on the whole we lean toward risk or toward safety — will determine the moral worth of our lives and their worth to the world in which we live. The world is glutted with people who play safe, who sit in their seats and live on the interest of safe spiritual investments. This is not the kind of a man that the world needs. It is the man who has the heart and the courage of the explorer, who is willing to embark like Columbus in quest of what he has every reason to know is there but the existence of which he can prove only as he spreads his sail to the breezes. We want more men who are not content with existing standards, who do not follow the crowd but tell the crowd where to go, who are not imitators but creators, who think all the time what they ought to do and not what it would be healthy for them to do. They have in them the spirit expressed in Julia Ward Howe's lines entitled 'The Passion Flower':

'By fields of ice and raging floods
Take the red passion from the gods;
I see the chasm of yawning dread,
I see the flaming arch o'erhead,
I stake my life upon the red.'

" (4) Akin to this is what we may call the social passion. The kind of man who impresses his fellows is the man who in a very real sense feels the pain and suffers the pangs of humanity. We need men who understand the deep yearning

of hundreds of thousands of people, to whom life has offered little, and before whom the world has closed most of its doors. That, it has well been said, is one of the most tragic and beautiful and summoning things in the life of our time. It is as dangerous as any intense life. It is as glorious as hope. Dante was called 'the voice of ten silent centuries,' and the Man of the Hour must be the voice of multitudes of inarticulate human beings, and his social interest will not deal wholly with men in the large, but with the concrete individual cases of need. He will press close to actual men, finding his way past all the barriers of prejudice and custom and temperament, and entering into intimate, understanding relations with individual men. He will be a social prophet in the world with the tang of an individualized human interest.

"(5) The last quality of the Man of the Hour which I would mention is one who has great spiritual ambitions. He will be able to deal with materials and to manipulate machinery, it may be; but above and beyond all that, he will have a profound sense of spiritual values. He will be alive to his finger-tips and conscious of every quivering vitality of the age in which he lives, and yet he will be a man who lives in conscious relation to the light never seen on sea or land. His practical grasp of human problems is reinforced, and his inner life is sharpened in definite human dependence upon God. In a word, he will be a consciously religious and Christian man. Social service, that is, is not enough unless behind it there is that conscious relationship to God, which is of the essence of true religion. Without it one is aware of a lessening life, a drying of the very sources of vitality. The old sense of greatness, of the challenge of eternity, is gone. But one who deals with the temporal only in the light of the eternal is in every way

a more effective man in this world because many of his motives come from regions beyond this world's life. He will be a better citizen of his own city because he has seen the vision of the Holy City. Religion will be a high and commanding and authentic sanction which gives the final quality of richness and fullness to his own life; and the deep and terrible sincerity of his religious life will give him a new power of leadership in the world in which he lives."

APPENDIX "B"

One of our Course XV graduates sent me the following rules of conduct which were found among the papers of Thomas Van Alstyne of Hanley, Canada, electrical engineer for the Westinghouse Company. It is entitled "My Guide."

"To respect my country, my profession, and myself. To be honest and fair with my fellowmen, as I expect them to be honest and square with me. To be a loyal citizen of the United States of America. To speak of it with praise, and act always as a trustworthy custodian of its good name. To be a man whose name carries weight wherever it goes.

"To base my expectations of reward on a solid foundation of service rendered. To be willing to pay the price of success in honest effort. To look upon my work as an opportunity to be seized with joy and made the most of, and not as a painful drudgery to be reluctantly endured.

"To remember that success lies within myself — my own brain, my own ambition, my own courage and determination. To expect difficulties and force my way through them. To turn hard experience into capital for future use.

"To believe in my proposition. To carry an air of

optimism in the presence of those I meet. To dispel ill temper with cheerfulness, kill doubts with a strong conviction, and reduce active friction with an agreeable personality.

"To make a study of my business. To know my profession in every detail. To mix brains with my efforts, and use system and method in my work. To find time to do every needful thing by never letting time find me doing nothing. To hoard days as a miser hoards dollars. To make every hour bring me dividends, increased knowledge, or healthful recreation.

"To keep my future unmortgaged by debts. To save as well as earn. To cut out expensive amusements until I can afford them. To steer clear of dissipation, to guard my health of body and peace of mind as precious stock in trade.

"Finally, to take a good grip on the joys of life. To play the game like a man. To fight against nothing so hard as my own weakness, and endeavor to grow in strength, a gentleman, a Christian.

"So I may be courteous to men, faithful to friends, true to God, a fragrance in the path I tread."

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